



FLWEMS Paramedics Neonatal & Pediatric Protocol for the Management of: **AIRWAY & VENTILATION**

Indications

To outline the paramedic care and management of the neonatal/pediatric patient requiring airway and ventilatory assistance.

Supportive Data For Use of Rapid Sequence Intubation (RSI) Procedures

Rapid Sequence Intubation (RSI) is frequently used in medical care to safely secure the airway in the patient who has an altered mental status, or has an absent gag reflex. RSI is used in a wide variety of patients including diagnosis of trauma, overdose, status epilepticus, and respiratory distress. It is especially useful for patients requiring ventilatory assistance that have potential rise in their intracranial pressure. All staff utilizing this protocol must be familiar with the medication(s) used and be experienced in the procedure of intubation and the performance of a surgical airway.

Rapid Sequence Intubation (RSI) procedures **ARE NOT** to be initiated on **ANY** patient less than fifteen (15) years old unless advised to do so by Medical Control.

Special Contraindications For Use of RSI Procedures

PARAMEDICS MUST USE STRICT ON-LINE DIRECT MEDICAL CONTROL FOR THE USE OF THE RSI PROCEDURE. THERE ARE NO EXCEPTIONS TO THIS GUIDANCE.

Other Special Considerations

For bronchospasms or wheezing, refer to the FLWEMS Paramedics Neonatal & Pediatric Protocol for the Management of: Respiratory Distress.

Procedure

1. Establish an airway by means of jaw thrust, head-tilt / chin-lift, removal of foreign body, oral airway or nasal airway.
2. Administer **Oxygen** via nasal cannula or non-rebreather mask as appropriate for the breathing patient or via BVM for apneic patient.
3. If patient is unable to maintain their own airway establish a definitive airway with either:
 - a. Oropharyngeal (OPA)
 - b. Nasal-pharyngeal (NPA)
 - c. Oral Endotracheal Intubation (ETT)

NOTE: *Oral Endotracheal Intubation is the preferred out-of-hospital airway for patient that cannot support their own airway.*

- d. Nasal Endotracheal Intubation (ETT)
- e. Esophageal Obturator Airway (EOA)
- f. Esophageal Gastric Tube Airway (EGTA)
- g. Pharyngeal-Tracheal Lumen Airway (PTL)
- h. Laryngeal Mask Airway (LMA)
- i. Non Surgical Cricothyroidotomy Device (*PerTrach or QuickTrach Device*)
- j. Surgical Cricothyroidotomy (Last Resort)

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ALL PATIENTS REQUIRING AIRWAY & VENTILATORY ASSISTANCE MUST HAVE THE FOLLOWING DIAGNOSTICS MAINTAINED:

CAPNOMETRY
ETCO2 MONITOR
PULSE OXIMETRY
CARDIAC MONITOR

4. Protect cervical spine if indicated.
5. If unable to intubate the patient rapidly due to facial trauma, oropharyngeal bleeding, or vomiting, and ventilation is ineffective, contact Medical Control and consider performing a surgical cricothyroidotomy or initiate the use of the PerTrach/QuickTrach device.
6. Secure the endotracheal tube (ETT) using twill tie device or tape. Secure the patient's head to the immobilization device or the stretcher to prevent displacement.
7. Assist ventilation's using a BVM or the automatic ventilator (auto-vent) whenever possible.
8. For induction sedation and to aid in ventilatory assistance consider one of the following:
 - **Midazolam HCl (Versed)**
 - ⚖ Ages 6-12 years old
0.025-0.05mg/kg IVP or IM, total dose up to 0.4mg/kg may be needed.
 - ⚖ Ages 6 months to 5 years
0.05-0.1mg/kg IVP or IM, total dose up to 0.6mg/kg may be needed.
 - ⚖ Child < 6 months of age
Titrate IVP or IM with small increments.
 - **Diazepam (Valium)**
 - ⚖ All ages
0.1-0.3mg/kg IVP or IM (1mg/min. over 3 minutes); may repeat every 15 minutes × 2 doses.
 - ⚖ Ages 6-11 years old
0.5mg/kg PR
 - ⚖ Ages 2-5 years old
0.3mg/kg PR
 - **Etomidate (Amidate)**
 - ⚖ All ages
Not indicated
- NOTE:** Use sedatives with caution in patients with hypotension.
9. Consider initiating Rapid Sequence Intubation (RSI) procedures for patient who require endotracheal intubation but have an active gag reflex..

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- a. See steps 10 through 23 for specific RSI procedures.
- 10. Establish or determine patency of IV or IO line.
- 11. Utilize the "Broslow Tape" system for procedure and medication administration guidelines.
- 12. Consider **Lidocaine HCl** 1mg/kg IVP for any patient with a suspected increased intra cranial pressure.
- 13. If trauma is involved, open the cervical collar and provide in-line manual immobilization of the head.

► IMPORTANT NOTE ◀

PARAMEDICS MUST CONTACT MEDICAL CONTROL AND SPEAK DIRECTLY WITH THE ON DUTY EMERGENCY DEPARTMENT PHYSICIAN PRIOR TO THE ADMINISTRATION OF ANY PARALYTIC MEDICATIONS

- 14. Consider one of the following chemical paralysis medications:
 - **Succinylcholine Chloride** (*Anectine*) 1-2mg/kg IV or IM not to exceed 150mg IM, in conjunction with sedative to optimize ventilation and to protect the airway.
 - **Zemuron** (*Rocuronium Bromide*) 0.6mg/kg IVP, in conjunction with sedative to optimize ventilation and to protect the airway.
 - **Norcuron** (*Vecuronium*)
 - ⌘ Ages 9-15 years old
0.08-0.1mg/kg IVP, (*then 0.01-0.015mg/kg for prolonged procedures*) in conjunction with sedative to optimize ventilation compliance and to protect the airway for patients who require ongoing paralytic interventions during prolonged inter-facility transports.
 - ⌘ Ages less than 9 years old
Not indicated

► NOTE ◀

PARAMEDICS MUST USE STRICT ON-LINE DIRECT MEDICAL CONTROL FOR THE USE OF ANY NON-DEPOLARIZING NEUROMUSCULAR BLOCKING AGENT. THERE ARE NO EXCEPTIONS TO THIS GUIDANCE

- 15. Allow patients to breathe spontaneously with high flow **Oxygen** via a non-rebreather mask until paralysis ensues.
- 16. Apply cricoid pressure (*Sellick Maneuver*) to occlude the esophagus until intubation is successfully completed, placement is checked, and the ETT cuff is inflated.
- 17. If paralytics are ineffective, check IV site for patency and repeat dose of:

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 - ⌚ Ages less than 9 years old
Not indicated

18. Attempt intubation. If unable to intubate in the first 60 seconds stop and ventilate the patient with BVM for 30 seconds and repeat intubation attempt. If endotracheal intubation remains unsuccessful, stop and ventilate the patient with BVM for 30 seconds and repeat intubation attempt. If endotracheal intubation remains unsuccessful, ventilate patient using a simple airway adjunct (Oropharyngeal Airway or Nasal-pharyngeal Airway) and BVM.

19. Consider non-surgical cricothyroidotomy device or contact Medical Control and consider surgical cricothyroidotomy for patients weighing at least 40kg. For patients who weigh less than 40kg, contact Medical Control and consider a needle cricothyroidotomy.

20. Assess tube placement, and confirm proper position.

21. Re-assess for breath sounds & air in the stomach, then confirm ET tubes placement using a secondary diagnostic device such as:

- Colorimetric CO2 Detector (*Should turn from purple to yellow in color*).
- ETCO2 Monitor (*Normal ranges of 35 – 45 mmHg*).
- Appropriate wave forms on capnography monitor.

22. Secure ET Tube using twill tie and secure the patient's head to the stretcher or spine board.

23. Replace cervical collar.

24. Again, re-assess for breath sounds & air in the stomach, then confirm ET tubes placement using a secondary diagnostic device such as:

- Colorimetric CO2 Detector (*Should turn from purple to yellow in color*).
- ETCO2 Monitor (*Normal ranges of 35 – 45 mmHg*).
- Appropriate wave forms on capnography monitor.

► NOTE ◀

CONTINUE THIS RE-ASSESSMENT EVERY FIVE (5) MINUTES OR WITH PATIENT'S MOVEMENTS OR AS NEEDED.

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25. In the event of an unstable tension pneumothorax, decompress the affected side with a 16-gauge IV needle/catheter or other approved needle decompression device.

- a. **DO NOT** attempt to place a chest tube in the field.

26. Endotracheal suctioning may be performed as needed.

27. Any patient requiring airway and ventilatory support MUST have the following diagnostics maintained:

- Capnometry
- ETCO2 Monitor
- Pulse Oximetry
- Cardiac Monitor

28. Transport to appropriate Emergency Department.

29. Contact medical control for further orders as needed.

Continuous Positive Air Pressure Device
(CPAP)

1. Neonatal/Pediatric patients requiring CPAP support during intra-facility patient transports should have the specific air-pressure setting(s) ordered by the referring physician.
2. CPAP should not be used for pediatric/neonatal in the "Pre-Hospital" setting (Emergency Calls).

Neonatal Mechanical Ventilator
(MVP-10 Transport Ventilator)

1. The FLWEMS MVP-10 Transport Neonatal/Pediatric Ventilator should only be operated by Paramedics, Respiratory Therapist, Nurses or Physicians who have been trained on this specific ventilator.
2. Specific neonatal/pediatric ventilator settings must be ordered by the referring physician with specific orders written for:
 - Inspiration Time
 - Expiratory Time
 - FiO2 (Air – Oxygen Blend)
 - Ventilator Flow (Lpm)
 - Max Air Pressure
 - PEEP
3. Patients requiring ventilatory support via MVP-10 Mechanical Transport Ventilator MUST have the following diagnostics maintained:
 - Capnometry
 - ETCO2 Monitor

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- Pulse Oximetry
- Cardiac Monitor

CAIRA/Chemical Surety Considerations
None

Triage Considerations
Refer to S.T.A.R.T. Triage Protocol

END OF SOP – NOTHING FOLLOWS